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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/619,520	07/19/2000	Brad C. Hollander	18357-00610US	1131

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EXAMINER

MCKANE, ELIZABETH L

ART UNIT	PAPER NUMBER
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1744

DATE MAILED: 05/21/2003

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Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/619,520

Applicant(s)

HOLLANDER, BRAD C.

Examiner

Leigh McKane

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-42 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4, 6-9, 11-15, 17, 18, 21-24, 26-29, 31-35, 37, 38, 41 and 42 is/are rejected.
- 7) ☒ Claim(s) 5, 10, 16, 19, 20, 25, 30, 36, 39 and 40 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 5, 7-9. 6) ☐ Other:

***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 24, 27, 28, 37, and 42 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claims 24, 27, 28, and 37, "said protective sleeve" and "said fluoropolymer sleeve" lack positive antecedent basis since claims 22 and 23, from which they depend, does not require a protective sleeve.

Claim 42 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite in that it fails to point out what is included or excluded by the claim language. This claim is an omnibus type claim.

***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1, 12, 21, 22, 32, 41, and 42 are rejected under 35 U.S.C. 102(b) as being anticipated by Matsushita (JP 03-165893) or Tsukada (JP 07-236884).

Matsushita teaches an apparatus for sterilizing fluids including a fluid conduit 1, an

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ultraviolet light source **2** within the fluid conduit, and an air drive unit **5** coupled to the fluid conduit for pumping an air/O<sub>3</sub> mixture into the fluid. As shown in the Figure, the conduit **1** is submerged in the fluid and is also partially in exposed to gas through the bubbles discharged at **6**.

Tsukada discloses an apparatus for sterilizing fluids including a fluid conduit **1**, an ultraviolet light source **8** within the fluid conduit, and an air drive unit **11** coupled to the fluid conduit for air into the fluid. As illustrated in Figure 1, the conduit **1** is submerged in the fluid and is also partially in exposed to gas through the bubbles discharged at **3**.

### *Claim Rejections - 35 USC § 103*

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

7. Claims 2-4, 6, 8, 9, 11, 13-15, 17, and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsushita or Tsukada, both in view of Peterson (U.S. Patent No. 4,968,489) and Block (Disinfection, Sterilization, and Preservation, 4<sup>th</sup> ed.).

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With respect to claims 2-4, 8, 9, 11, neither Matsushita or Tsukada teach the specifics of the UV light source. Block evidences that “the most practical method of generating UV radiation is by passage of electric discharge through low-pressure mercury vapor enclosed in special glass tubes...The principle of all germicidal lamps is the same, that of electron flow between electrodes through ionized mercury vapor.” Page 555, “Germicidal Lamps.” Thus, standard UV lamps by definition have a casing for holding a gas and a vaporizable material, and at least one electrode. Peterson discloses that it is known in the art to house immersed UV quartz lamps in a protective sleeve, such as an FEP sleeve (col.2, lines 15-31), in order to protect them from accumulating slime, deposits, and breakage. For this reason, it would have been obvious to provide the FEP sleeve of Peterson for the immersed lamps of Matsushita and Tsukada.

As to claim 6, Block teaches a glass casing and Peterson a quartz casing. As both are UV transmissive, it is deemed obvious to use either in the systems of Matsushita or Tsukada.

With respect to claim 13-15, the combination with Peterson discloses that the sleeve is applied in the form of a sleeve, or a strip that is wound onto the tube, or a dipped coating. See Peterson col.4, lines 4-8. However, it is deemed obvious to apply the sleeve in any other art recognized methods, such as heat shrinking and form pressing.

As to claims 17 and 18, the apparatus of Peterson includes the sleeve 160 and end caps 52 for sealing the tube. Although Peterson does not teach from what material the end caps are constructed, it would have been obvious to form them from the FEP material, in order to avoid slime accumulation thereon.

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8. Claims 2, 3, 7, and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsushita or Tsukada, both in view of Boyce et al (U.S. Patent No. 3,018,187) and Block (Disinfection, Sterilization, and Preservation, 4<sup>th</sup> ed.).

Neither Matsushita or Tsukada teach the specifics of the UV light source. Block evidences that “the most practical method of generating UV radiation is by passage of electric discharge through low-pressure mercury vapor enclosed in special glass tubes... The principle of all germicidal lamps is the same, that of electron flow between electrodes through ionized mercury vapor.” Page 555, “Germicidal Lamps.” Thus, standard UV lamps by definition have a casing for holding a gas and a vaporizable material, and at least one electrode. Boyce et al discloses coating a lamp with a silicone material which is moisture-impervious and prevents problems associated with the accumulation of water on the exterior surface of the lamp. See col.1, lines 24-70. In order to avoid these same problems, it would have been obvious to provide a silicone sleeve on the lamps of Matsushita or Tsukada.

9. Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Matsushita or Tsukada as applied to claim 22 above, and further in view of Block (Disinfection, Sterilization, and Preservation, 4<sup>th</sup> ed.).

Neither Matsushita or Tsukada teach the specifics of the UV light source. Block evidences that “the most practical method of generating UV radiation is by passage of electric discharge through low-pressure mercury vapor enclosed in special glass tubes... The principle of all germicidal lamps is the same, that of electron flow between electrodes through ionized mercury vapor.” Page 555, “Germicidal Lamps.” Thus, standard UV lamps by definition have a casing for holding a gas and a vaporizable material, and at least one electrode.

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10. Claims 24, 26, 27, 29, and 33-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsushita or Tsukada, both in view of Block as applied to claim 23 above, and further in view of Peterson.

With respect to claims 24, 27, and 29, the combination of Matsushita or Tsukada, both with Block fails to teach a protective sleeve. Peterson discloses that it is known in the art to house immersed UV quartz lamps in a protective sleeve, such as an FEP sleeve (col.2, lines 15-31), in order to protect them from accumulating slime, deposits, and breakage. For this reason, it would have been obvious to provide the FEP sleeve of Peterson for the immersed lamps of Matsushita and Tsukada.

As to claim 26, Block teaches a glass casing and Peterson a quartz casing. As both are UV transmissive, it is deemed obvious to use either in the systems of Matsushita or Tsukada.

With respect to claim 33-35, the combination with Peterson discloses that the sleeve is applied in the form of a sleeve, or a strip that is wound onto the tube, or a dipped coating. See Peterson col.4, lines 4-8. However, it is deemed obvious to apply the sleeve in any other art recognized methods, such as heat shrinking and form pressing.

11. Claim 28 is rejected under 35 U.S.C. 103(a) as being unpatentable over Matsushita or Tsukada, both in view of Block as applied to claim 23 above, and further in view of Boyce et al.

The combinations of Matsushita or Tsukada, both with Block fails to teach a protective sleeve. Boyce et al discloses coating a lamp with a silicone material which is moisture-impervious and prevents problems associated with the accumulation of water on the exterior surface of the lamp. See col.1, lines 24-70. In order to avoid these same problems, it would have been obvious to provide a silicone sleeve on the lamps of Matsushita or Tsukada.

12. Claim 31 is rejected under 35 U.S.C. 103(a) as being unpatentable over Matsushita or Tsukada as applied to claim 22 above, and further in view of Peterson or Boyce et al.

Matsushita or Tsukada both fail to teach a protective sleeve that hermetically seals the UV light bulb. However, both Peterson and Boyce et al teach sleeves which hermetically seal and protect a UV light bulb from water and deposit accumulation. As such would be beneficial in the devices of Matsushita and Tsukada, it would have been obvious to add a sleeve thereto.

13. Claims 37 and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsushita or Tsukada as applied to claim 22 above, and further in view of Peterson.

Matsushita or Tsukada both fail to teach a protective sleeve for the UV bulb. However, the apparatus of Peterson includes an FEP sleeve **160** and end caps **52** for sealing the tube in order to protect it from accumulating slime, deposits, and breakage. Although Peterson does not teach from what material the end caps are constructed, it would have been obvious to form them from the FEP material, in order to avoid slime accumulation thereon. Moreover, it would have been obvious to add the sleeve and endcaps of Peterson to the devices of Matsushita and Tsukada in order to protect them for slime, deposits, and breakage.

*Allowable Subject Matter*

14. Claims 5, 10, 16, 19, 20, 25, 30, 36, 39, 40 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.



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15. The following is a statement of reasons for the indication of allowable subject matter:

With respect to claims 5 and 25, although Peterson teaches an FEP sleeve for the quartz casing, there is no teaching or suggestion to fabricate the casing itself from a fluoropolymer. As to claims 10 and 30, none of the prior art of record teaches or suggests a sleeve which is formed as a removable container. With respect to claims 16 and 36, although the prior art discloses a protective sleeve for a lamp tube, it fails to teach or suggest a protective sleeve that hermetically seals a solar power source with the lamp tube. As to claims 19, 20, 39, and 40, although Peterson evidences the use of a fluoropolymer sleeve for the tube, as well as, the use of end caps, Peterson fails to teach or suggest fabricating the end caps from silicone or sealing the end caps to the sleeve using a silicone sealer.

### *Conclusion*

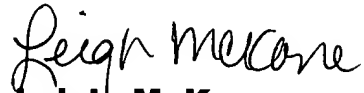
16. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Bowser et al (U.S. Patent No. 6,066,919) teaches the use of a polycarbonate material for the lamp casing.

17. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Leigh McKane whose telephone number is 703-305-3387. The examiner can normally be reached on Monday-Wednesday (7:15 am-4:45 pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert J. Warden can be reached on 703-308-2920. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

  
**Leigh McKane**  
**Primary Examiner**  
**Art Unit 1744**

elm  
May 20, 2003